January 1, 2022

Re: Simpson Strong-Tie® – 3/8" Titen HD® Heavy Duty Carbon-steel Screw Anchor Allowable Shear Loads for Anchoring into Fully Grouted CMU Construction

To Whom It May Concern:

Simpson Strong-Tie has completed a shear test program of the 3/8-inch diameter Titen HD Heavy Duty Carbon-steel screw anchors installed into the top and end of fully grouted CMU. This test program was performed in order to provide performance values for anchor applications commonly used in window and door attachments. Simpson Strong-Tie performed the testing at our IAS accredited test laboratory located in McKinney, TX. Testing was performed into 8" lightweight fully grouted CMU walls in accordance with a modified version of *ASTM E488* (½" thick fixture plate used to simulate application). The two conditions tested were the top-of-wall condition for window sill and window head attachments, and the end-of-wall condition for jamb attachments. We also tested at two edge distance conditions: 1 ¾" and 5 ⅞" to account for positive and negative pressures due to wind load. For each condition, two embedment lengths were tested – 2 ½" and 5 ½". A ½" thick steel fixture plate was used between the CMU and the head of the Titen HD screw anchor. Refer to the following load tables and illustrations summarizing the results of this test program. Load values in this letter are applicable to both hex head and countersunk head types of 3/8-inch diameter Titen HD Heavy Duty Carbon-steel screw anchor.

The information in this letter is valid until **12/31/2022** when it will be re-evaluated by Simpson Strong-Tie. Please visit strongtie.com for additional pertinent information. If you have questions or need further assistance regarding this matter, please contact the Simpson Strong-Tie engineering department at 800.999.5099.

Sincerely,

SIMPSON STRONG-TIE COMPANY INC

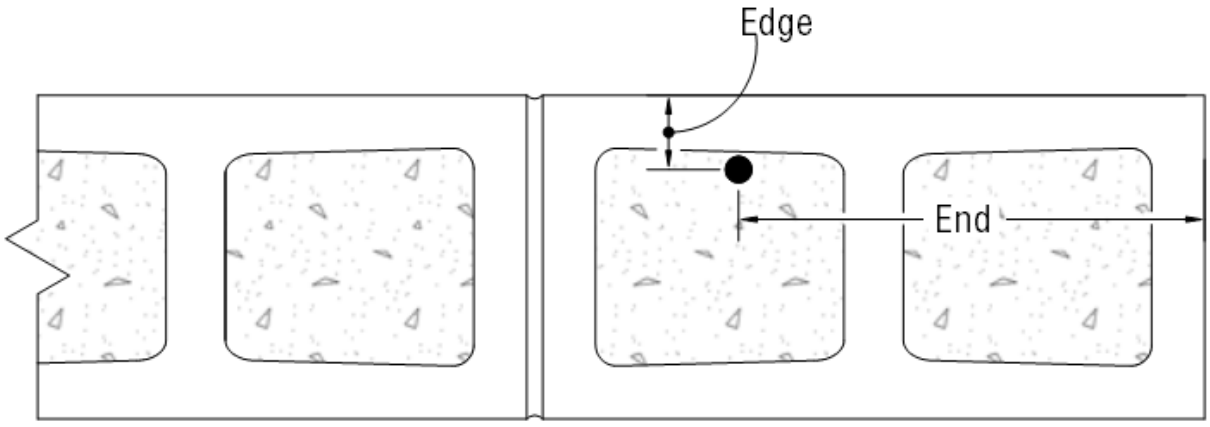
Titen HD®

Shear Loads in 8-inch Fully Grouted CMU - Anchor Installed in Top of Wall (See Figure 1)

8-inch Grout-Filled CMU Allowable Loads Based on CMU Strength						
Anchor Diameter in. (mm)	Drill Bit Dia. in.	Embedment Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. End Distance in. (mm)	Min. Spacing in. (mm)	Shear Perp. to Edge Allowable lbs. (kN)
⅜ (9.5)	⅜	2 ½ (63)	1 ¾ (44)	12 (305)	8 (203)	255 (1.1)
			5 ⅞ (149.2)			450 (2.0)
		5 ½ (139)	1 ¾ (44)	12 (305)	8 (203)	275 (1.2)
			5 ⅞(149)			625 (2.7)

1. The tabulated allowable loads are based on a safety factor of 5.0 for installations.
2. Values are for 8 inch wide, lightweight, medium-weight, and normal weight concrete masonry units.
3. Loads are based on fully grouted CMU cells.
4. The minimum specified compressive strength of masonry, f'm, at 28 days is 1,500 psi.

Figure 1



Anchor Installed in Top of Wall

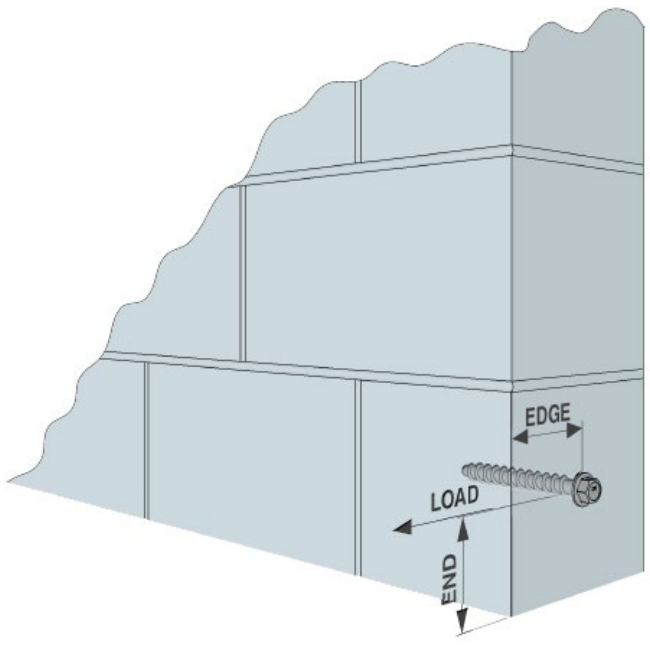
Titen HD®

Shear Loads in 8-inch Fully Grouted CMU - Anchor Installed at End of Wall (See Figure 2)

8-inch Grout-Filled CMU Allowable Loads Based on CMU Strength						
Anchor Diameter in. (mm)	Drill Bit Dia. in.	Embedment Depth in. (mm)	Min. Edge Dist. in. (mm)	Min. End Distance in. (mm)	Min. Spacing in. (mm)	Shear Perp. To Edge Allowable lbs. (kN)
⅜ (9.5)	⅜	2 ½ (63)	1 ¾ (44)	4 (102)	8 (203)	220 (0.9)
			5 ⅞ (149)			635 (2.8)
		5 ½ (139)	1 ¾ (44)	4 (102)	8 (203)	280 (1.2)
			5 ⅞ (149)			720 (3.2)

1. The tabulated allowable loads are based on a safety factor of 5.0.
2. Values are for 8 inch wide, lightweight, medium-weight, and normal weight concrete masonry units.
3. Loads are based on fully grouted CMU cells.
4. The minimum specified compressive strength of masonry, f'm, at 28 days is 1,500 psi.

Figure 2



Anchor Installed at End of Wall